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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,607	03/28/2001	Yasuo Okutani	35.G2761	1901

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EXAMINER

WOZNIAK, JAMES S

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,607

Applicant(s)

OKUTANI ET AL. 

Examiner

James S. Wozniak

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 6, 7, 9-13, 18, 19 and 21-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 7, 9-13, 18, 19 and 21-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the office action from 6/13/2005, the applicant has submitted a request for continued examination, filed 9/13/2005, amending claims 1, 13, and 25, while arguing to traverse the art rejection based on the amended limitations (*Amendment, pages 10-11*). The applicant's arguments have been fully considered but are moot with respect to the new grounds of rejection in view of Eide et al (*U.S. Patent: 6,101,470*).
2. In light of the applicant's arguments regarding the objection of claims 22-23 and 29-30 (*Amendment, page 9*), the examiner has withdrawn the objection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language:

4. **Claims 1, 12-13, 24-25, and 31** are rejected under 35 U.S.C. 102(e) as being anticipated by Eide et al (*U.S. Patent: 6,101,470*).

With respect to **Claims 1, 13, and 25**, Eide discloses:

Distortion obtaining means for obtaining a modification distortion between synthesis units before and after modification responsive to prosody of a text (*original synthesis unit*, Col. 3, Lines 35-45; Col. 4, Lines 32-40; and distortion between original modified synthesis unit (*substituted and aligned training unit*) based on stress (prosody) information, Col. 5, Lines 9-26; and Col. 8, Lines 42-53);

Selection means for selecting synthesis units based on the modification distortion obtained by said distortion obtaining means (Col. 5, Lines 27-48; and Col. 8, Lines 42-53);

Speech synthesis means for performing speech synthesis based on the synthesis units selected by said selection means (Col. 3, Lines 35-49); wherein the modification is based on prosody information of an input text segment (Col. 4, Lines 32-40; Col. 5, Lines 9-26; and Col. 8, Lines 42-53).

Eide further teaches method implementation as a program stored on a computer readable medium (Col. 2, Line 64- Col. 3, Line 34).

With respect to **Claims 12, 24, and 31**, Eide recites:

Input means for inputting text data (Col. 3, Lines 35-49);

Language analysis means for performing language analysis of the text data (Col. 4, Lines 32-40);

Prosody-parameter generation means for generating predetermined prosody parameters based on a result of analysis of said language analysis means (Col. 3, Lines 35-49);

Wherein said distortion obtaining means obtains the modification distortion based on the predetermined prosody parameters generated by said prosody parameter generation means (*Col. 4, Lines 9-26; and Col. 8, Lines 42-53*).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 6-7, 18-19, and 26-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eide et al in view of Huang et al (*U.S. Patent: 5,913,193*).

With respect to **Claims 6, 18, and 26**, Eide teaches the speech synthesis apparatus and method that utilizes a modification distortion, calculated as the distance between an individual synthesis unit before and after modification, in selecting a best speech unit for synthesizing speech, as applied to Claims 1, 13, and 25. Eide does not teach obtaining a distortion by adding modification and concatenation distortion, however Huang discloses:

A speech signal processing apparatus and method, wherein the distortion obtaining means uses a value obtained by adding the obtained modification distortion between the synthesis units before and after modification and a concatenation distortion (*spectral distortion between adjacent instances, Col. 3, Lines 1-6*) generated by concatenating a synthesis unit to another synthesis unit (*summing the distortions of an instance sequence, Col. 9, Lines 44-47*).

Eide and Huang are analogous art because they are from a similar field of endeavor in speech synthesis. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Eide with the method of summing distortions including a concatenation distortion as taught by Huang in order to provide more natural synthesized speech generation by minimizing spectral distortion between speech segment boundaries (Huang, Col. 1, Line 57- Col. 2, Line 9).

With respect to **Claims 7, 19, and 27**, Huang recites:

A speech signal processing apparatus and method, wherein the distortion obtaining means calculates a weighted sum of the modification distortion between the synthesis units before and after modification and the concatenation distortion generated by concatenating a synthesis unit to another synthesis unit (*Col. 8, Line 51- Col. 9, Line 22*).

7. **Claims 9, 21, and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eide et al view of Akamine et al (*U.S. Patent: 6,161,091*).

With respect to **Claims 9, 21, and 28**, Eide teaches the speech synthesis apparatus and method that utilizes a modification distortion, calculated as the distance between an individual synthesis unit before and after modification, in selecting a best speech unit for synthesizing speech, as applied to Claims 1, 13, and 25. Eide does not specifically suggest calculating modification distortion using a cepstrum distance, however Akamine discloses:

A speech signal processing apparatus and method, wherein said distortion obtaining means calculates the modification distortion using a cepstrum distance (*Col. 5, Line 56- Col. 6, Line 19*).

Eide and Akamine are analogous art because they are from a similar field of endeavor in speech synthesis. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Eide with the means of calculating distortion through cepstral distance as taught by Akamine in order to provide a well-known means that better describes speech segments, in addition to Euclidean distance, for determining a most accurate phonetic segment for the generation of more natural synthesized speech (Akamine, *Col. 5, Line 56- Col. 6, Line 19; and Col. 4, Lines 27-30*).

8. **Claims 10-11, 22-23, and 29-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eide et al in view of Coorman et al (*U.S. Patent: 6,665,641*).

With respect to **Claims 10, 22, and 29**, Eide teaches the speech synthesis apparatus and method that utilizes a modification distortion in selecting a best speech unit for synthesizing speech, as applied to Claims 1, 13, and 25. Eide does not teach the use of a table to determine a modification distortion, however Coorman discloses:

A speech signal processing apparatus and method, wherein the distortion obtaining means includes a table storing distortions, and determines the modification distortion by referring to the table (*Col. 13, Line 33- Col. 14, Line 21*).

Eide and Coorman are analogous art because they are from a similar field of endeavor in speech synthesis. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings Eide with the use of a table for determining a modification distortion as taught by Coorman in order to provide a means for easily selecting candidate speech units that most closely match target speech (*Coorman, Col. 9, Lines 27-38*).

With respect to **Claims 11, 23, and 30**, Eide teaches the speech synthesis apparatus and method that utilizes a modification distortion in selecting a best speech unit for synthesizing speech, as applied to Claims 1, 13, and 25. Eide does not teach the use of a table to determine a concatenation distortion, however Coorman discloses:

A speech signal processing apparatus and method, wherein the distortion obtaining means includes a table storing distortions, and determines the concatenation distortion by referring to the table (*Col. 11, Lines 43-67; Col. 14, Lines 23-49, and Col. 7, Lines 43-50*).

Eide and Coorman are analogous art because they are from a similar field of endeavor in speech synthesis. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings Eide with the use of a table for determining concatenation distortion as taught by Coorman in order to provide a means for easily selecting candidate speech units that will not cause pitch discontinuities (*Coorman, Col. 9, Lines 39-44*).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Lumelsky (*U.S. Patent: 6,081,780*)- teaches a speech synthesis system that generates prosodic parameters from text and determines a variance between an original speech unit and a synthesized speech unit in order to adjust prosodic parameters.

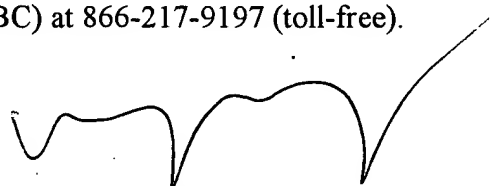
Tsuchiya et al (*U.S. Patent: 6,202,048*)- teaches a speech synthesis system capable of determining prosodic information from input text and the difference between original and synthesized speech.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
10/12/2005



W. R. YOUNG
PRIMARY EXAMINER